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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/770,669 | 01/29/2001 | Kimiyuki Hayasaki | 862.C2094 | 7044 |

5514 7590 10/21/2002

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EXAMINER

NGUYEN, LAM S

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2853 | |

DATE MAILED: 10/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

| | | |
|-----------------|--------------------|----------|
| Application No. | HAYASAKI, KIMIYUKI | |
| 09/770,669 | Examiner | Art Unit |
| LAM S NGUYEN | 2853 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on _____.
2a) This action is FINAL. 2b) This action is non-final.
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-53 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
5) Claim(s) ____ is/are allowed.
6) Claim(s) 1-53 is/are rejected.
7) Claim(s) ____ is/are objected to.
8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
10) The drawing(s) filed on 29 January 2001 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
11) The proposed drawing correction filed on ____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.

4) Interview Summary (PTO-413) Paper No(s). _____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Markham (US 5907331) in view of Kojima et al. (US 4649401).

Markham discloses a printed comprising:

a plurality of printing elements for printing (FIG. 3, elements Q0-Q16);

a block selection circuit including a decoder (**Referring to claims 4, 12, 19**) that outputs a

selection signal for selecting a block comprising a plurality of printing elements (FIG. 3, element 36 and Abstract);

printing control circuit which outputs a driving signal for selectively driving said printing elements, together with the selection signal, to each of said printing elements in correspondence with image data (FIG. 3, elements 50, 34, 17a-d); and

an input portion, which receives external image data to be input to said printing control circuit (FIG. 3: a corresponding portion for inputting DATA/DIR signal)

wherein said input portion is adapted to receive the image data and block selection data input to said block selection circuit (FIG. 3: DATA/DIR signal).

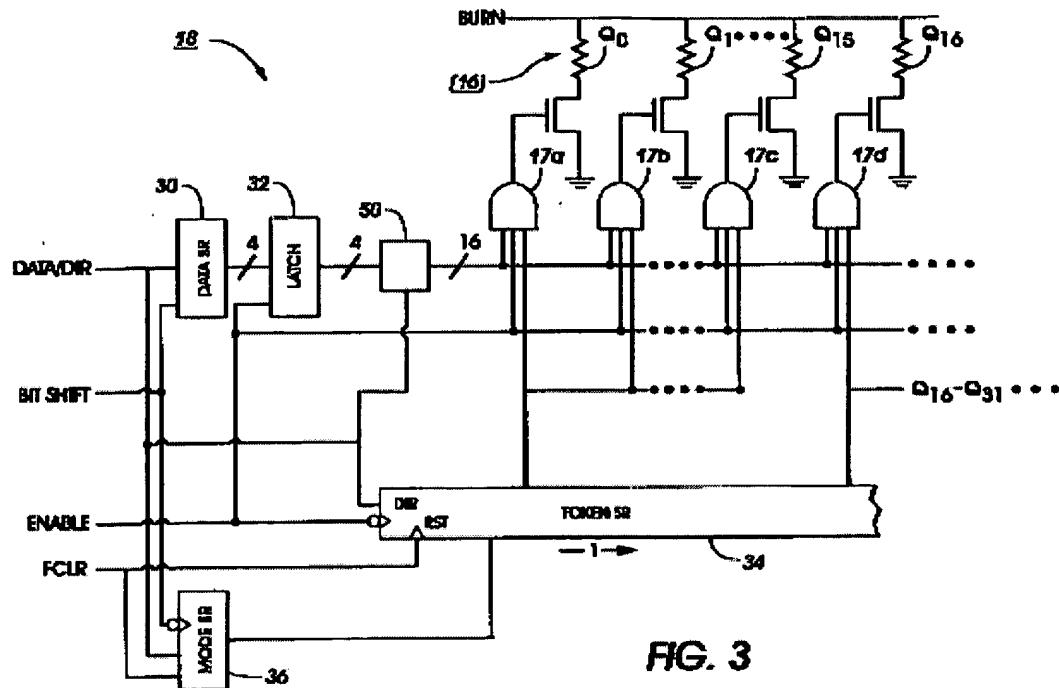


FIG. 3

Referring to claims 3, 9, 24, 27, 34: wherein said input portion is adapted to receive data in units of 4 bits (FIG. 3: 4 bits transferred from shift register 30 to latch 32).

Referring to claims 5, 6, 13, 14, 20, 21, 35, 39, 44: wherein each of said printing elements performs printing using heat energy and wherein each of said printing elements performs printing by discharging ink (FIG. 3, elements Q0-Q16).

Referring to claims 10, 17, 30, 37, 42, 48, 50, 51: wherein said input portion is adapted to receive data to be input to said block selection circuit together with the image data (FIG. 3: the image data to shift register 30 and the block selective signal to mode SR 36 are received on the same data line DATA/DIR).

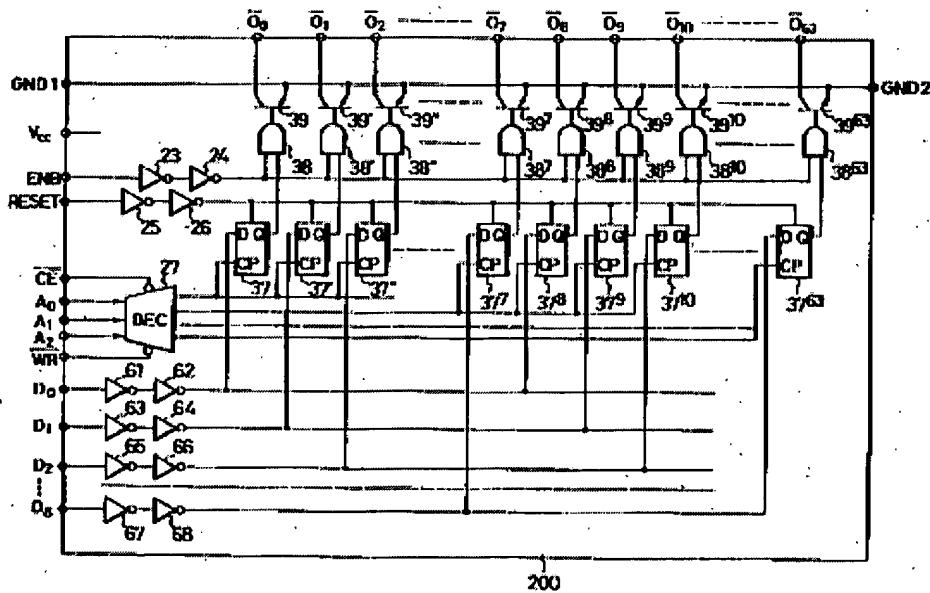
Referring to claims 11, 15, 18, 31, 38, 43: wherein said input portion is adapted to continuously receive the image data and data to be input to said block selection circuit (Fig. 5b).

Referring to claims 16, 29, 41: wherein a printing element driving time is set in accordance with the data associated with the driving timing (FIG. 5A-D and FIG. 6A-C)

Markham does not disclose wherein said input portion includes a shift register for sequentially shifting the parallel-received image data with the same number of bits as the bus format (**Referring to claims 2, 8, 23, 26, 33, 45-53**)

However, Kojima et al. disclose wherein said input portion includes a shift register (FIG. 7, elements 37) for sequentially shifting the parallel-received image data with the same number of bits as the bus format (FIG. 2, element DATA(D0~7) for high-speed recording data transfer.

FIG. 3



Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to replace the shift register for serial receiving data as disclosed by Markham by the shift register to parallel receive data from a controller to a printhead as disclosed by Kojima et al. The motivation of doing so is to reduce time for transferring recording

data in order to obtain high speed operation of the printing system as taught by Kojima et al. (column 1, line 50-56).

Response to Arguments

Applicant's arguments filed 07/08/2002 have been fully considered but they are not persuasive.

Regarding to the argument on page 15, 3rd paragraph referring to claims 1, 7, 15, 22, 25, 28, 32, 36, 40: The applicants argued that the prior arts did not disclose a printhead receiving external image data and block selection data in a bus format and continuously receiving image data and data associated with a printing element driving timing. However, as discussed above, the combination of Markham and Kojima et al. references discloses the above limitations. Therefore, these claims are unpatentable.

Regarding to the argument on page 16, 4th paragraph referring to claims 2-6, 8-14, 16-21, 23, 24, 26, 27, 29-31, 33-35, 37-39, and 41-53: The applicants argued that these claims are allowable since their dependence on the allowable claims 1, 7, 15, 22, 25, 28, 32, 36, 40. However, as discussed above, claims 1, 7, 15, 22, 25, 28, 32, 36, 40 are unpatentable and the combination of Markham and Kojima et al. references discloses all limitations in the claimed invention. Therefore, these claims are also unpatentable.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wiklof et al. (US 5625339) teach a plurality of data lines used for transmitting data from a controller to a printhead (FIG. 6C).

Fleming et al. (US 5926201) teach image data transferred to a printhead in a bus format (FIG. 1).

Elliott (US 5327165) teaches image data transferred to a printhead in a bus format (FIG. 2).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S NGUYEN whose telephone number is (703)305-3342. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN E BARLOW can be reached on (703)308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

LN

October 7, 2002

JOBar
John Barlow
Supervisory Patent Examiner
Technology Center 2800